

**REMARKS****I. STATUS OF THE CLAIMS**

Various of the claims are amended herein.

Claims 1-13 are currently pending.

**II. REJECTION OF CLAIMS 1, 2 AND 5-13 UNDER 35 USC 103 OVER THE APPLICANT'S ADMITTED PRIOR ART (AAPA) IN VIEW OF KASHIMA AND OKUYAMA**

The present invention as recited, for example, in claim 1, relates to an optical switch comprising first through fourth optical matrix switches. Each of the first to fourth optical matrix switches includes a plurality of 2-input/2-output optical switch elements arranged in a matrix to form a plurality of input ports, a plurality of auxiliary input ports, a plurality of output ports, and a plurality of auxiliary output ports. See, for example, each of the optical matrix switches 42-1, 42-2, 42-3 and 42-4 in FIG. 2.

Moreover, as recited, for example, in claim 1, (a) the auxiliary output ports in the first optical matrix switch are connected to the input ports in the third optical matrix switch, (b) the output ports in the second optical matrix switch are connected to the auxiliary input ports in the third optical matrix switch; (c) the output ports in the first optical matrix switch are connected to the auxiliary input ports in the fourth optical matrix switch; and (d) the auxiliary output ports in the second optical matrix switch are connected to the input ports in the fourth optical matrix switch. See, for example, the connection of the optical matrix switches 42-1, 42-2, 42-3 and 42-4 in FIG. 2.

As recited, for example, in claim 1, the first, second, third and fourth optical matrix switches together thereby being a non-blocking optical switch.

The AAPA is shown in FIG. 13.

Please compare the configuration of ports in FIG. 2 (i.e., embodiments of the present invention) to the configuration of ports in FIG. 13 (i.e., the AAPA). As can be seen from this comparison, embodiments of the present invention are significantly different than the AAPA.

Further, as would be understood by FIG. 13 and as described on page 4, lines 9-17, of the specification, the AAPA would require a switched optical signal to pass through more optical matrix switches than embodiments of the present invention.

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The optical matrix switch in FIG. 13(A) of the AAPA includes auxiliary input ports and

auxiliary output ports, and the configuration in FIG. 13(B) of the AAPA is based on a specific connection of these optical matrix switches.

However, the switches in Kashima do not have auxiliary input ports and/or auxiliary output ports. Therefore, the types of switches and manner of configuring switches in Kashima is significantly different than the AAPA, and the underlying technical idea in Kashima is significantly different than the AAPA.

Further, the various port connections in Kashima do not disclose or suggest any manner of connecting auxiliary input ports and/or auxiliary output ports. Therefore, even if Kashima was combined with the AAPA, it is respectfully submitted that the combination would not disclose or suggest the specific configuration recited, for example, in claim 1.

Moreover, claim 1 specifically recites a "non-blocking" optical switch. In Kashima, when cross-connection is performed, and depending on the order that the paths are set, some paths cannot be set even when the output ports are open. This is because blocking occurs in these paths. Blocking occurs since, for example, Kashima does not have any auxiliary input ports or auxiliary output ports. Therefore, Kashima is not a "non-blocking" optical switch.

\* \* \*

FIG. 5 (cited by the Examiner) of Okuyama discloses a 4x4 optical matrix switch comprised by four 2x2 optical switches 3a, 3b, 3c and 3d. The 4x4 optical matrix switch has four input ports 1a, 1b, 1c and 1d, and four output ports 5a, 5b, 5c and 5d.

However, the 4X4 optical matrix switch in FIG. 5 of Okuyama does not disclose or suggest or relate to an optical matrix switch having auxiliary input ports and/or auxiliary output ports as recited, for example, in claim 1, or as illustrated, for example, as optical matrix switches 42-1, 42-2, 42-3 and 42-4 in FIG. 2.

Moreover, the 4X4 optical matrix switch in FIG. 5 of Okuyama does not disclose or suggest or relate to an optical matrix switch as shown, for example, in the AAPA of FIG. 13(A), or the configuration of a plurality of optical matrix switches as shown, for example, in the AAPA of FIG. 13(B). Therefore, it is respectfully submitted that FIG. 5 of Okuyama is based on significantly different technology than the AAPA, and should not be combined with the AAPA.

In addition, even if Okuyama was combined with the AAPA, for at least the reasons described above with respect to the AAPA, it is respectfully submitted that the combination would not disclose or suggest the present invention as recited, for example, in claim 1.

\* \* \*

Moreover, even if Okuyama was combined with Kashima, for at least the reasons

described above with respect to Kashima, it is respectfully submitted that the combination would not disclose or suggest the present invention as recited, for example, in claim 1.

\* \* \*

Although the above comments are specifically directed to claim 1, it is respectfully submitted that the comments would be useful in understanding various differences in various other claims over the cited references.

**Please note that the claims are amended to clarify that each optical matrix switch includes input ports, auxiliary input ports, output ports and auxiliary output ports. In view of the above comments, it is respectfully submitted that the claim amendments further clarify differences over the cited references.**

\* \* \*

Claim 10 is amended to clarify that an input signal on any of the input ports is switchable to be output from any of the output ports while passing through no more than two of the four nxn optical matrix switches. See also claims 9, 11, 12 and 13.

As indicated on page 4, lines 9-17, and as can be seen from FIG. 13(B), of the present application, the AAPA does not provide such operation.

\* \* \*

In view of the above, it is respectfully submitted that the rejection is overcome.

III. REJECTION OF CLAIMS 3 AND 4 UNDER 35 USC 103 OVER  
THE APPLICANT'S ADMITTED PRIOR ART (AAPA)  
IN VIEW OF KASHIMA AND OKUYAMA AND FURTHER  
IN VIEW OF SHIMOMURA

The comments in Section II, above, also apply here.

In view of the above, it is respectfully submitted that the rejection is overcome.

IV. IDS

An IDS was filed on April 17, 2001, and an additional copy of the IDS was filed on July 23, 2003. The outstanding Office Action includes an "initialed" copy of Form PTO-1449 of the IDS. However, the Examiner did not acknowledge reference "AM" on the Form PTO-1449. This appears to be a minor oversight by the Examiner.

In view of the above, it is respectfully requested that the Examiner "initial" reference "AM" on the Form PTO-1449 of the IDS.

V. CONCLUSION

In view of the above, it is respectfully submitted that the application is in condition for allowance, and a Notice of Allowance is earnestly solicited.

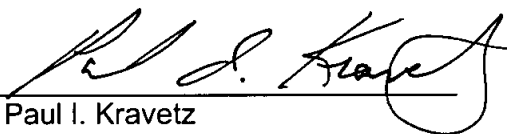
If any further fees are required in connection with the filing of this response, please charge such fees to our Deposit Account No. 19-3935.

Respectfully submitted,

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Date: February 2, 2004

By: \_\_\_\_\_



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